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Davis - Ag. Engineering

December 17, 1956

The wind survey in the delta area west and northwest of Stockton was continued on a slightly expanded basis during the 1956 spring and summer seasons with the same instrumentation as in the 3 previous years.

A change of location had to be made for the Rindge Island spot climate recorder. The new place is about one mile southeast of the former and should not be considered significantly different. Unfavorable, however, were frequent instrument failures and some absences of the island's operator so that this season's records from Rindge Island are rather incomplete. This is not too discouraging because the 3 previous years furnished the pertinent information already, and also a practically complete record was obtained for the first time from the newly installed spot climate recorder near Terminus. This station is 7 miles north of the Rindge Island station and obviously more exposed to the summer monsoon winds from the Carquinez Straits. Some interesting wind differences between the two stations could be determined by comparing the days on which data were registered at both locations.

At first, the tables 1 to 4 were compiled in the same way (for reason of continuity) as in the 3 previous years, except that this year the Terminus data were preferred to the Rindge records. Table 1 (second line compared with first line) shows that days with hourly velocities over 10 mph occurred on almost all days from April through July. This is in general agreement with our previous findings except for April, which this year was characterized by frequent storm passages that are common during the winter

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found in our previous work, especially in the field, and even
the present position since we have not experienced

insects in the field with one exception, which was never brought

into the laboratory. The insect was found to be a species of *Thrips* accompanied by a species of *Phytomyza*.

ANOTHER INSECT, A SPECIES OF *Thrips*, WAS FOUND ACCOMPANYING THE *Phytomyza*. THIS WAS FOUND IN THE FIELD.

NUMBER OF VINES. - The number of vines should usually

be determined before the vines are harvested. This can be done by counting the vines in a detailed

area, or by counting the vines in a sample area, and then multiplying by the number per acre.

RELATION OF VINES TO PLANTING. - The number for

the degree of relation of vines to planting should be determined to be constant throughout the field.

NUMBER OF HOUSERS PER VINE. - The number of housekeepers per vine should be determined.

NUMBER OF ALLEGEDLY HOUSEKEEPERS PER VINE. - The number of alleged housekeepers per vine should be determined.

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December 17, 1957

out according to the valley shape, becoming south in the northern part and northeast in the southern part of the Central Valley (see map in 1955 project report). The Terminus station with the straightest east directions seems to be closest to the center of this funnel, and perhaps also be located where the divergence is in an earlier stage. This then could explain another previously not experienced feature namely the high number of hours with strong winds as occurring in table 3, and still more striking in table 4 of this year's compilation.

Table 4 contains the hourly distribution of strong winds as in previous reports but this year compiled from the Terminus data. The maximum occurrence is between 2 and 6 pm as it was found on Ridge Island in 1955-57. However, the numbers of hours appear to be much greater than in any previous reports tabulation. A selection of 47 days with simultaneous recordings was therefore used in order to allow an exact comparison between Terminus and Ridge Island, and to decide whether the 1958 season really was so much more hazardous, or whether the difference of locations might be the cause. The result, in figure 2, proves that Terminus indeed is a more exposed station. The number of hours with strong velocities is somewhat higher during the cooler months (afternoon), but much higher during the other hours of the day. Strong winds can occur at any hour at Terminus whereas at Ridge the high velocities are mainly confined to the afternoon hours. Figure 1 should not be used for further comparisons because they are based on frequency compilations for which 47 days hardly are sufficient. One step further might be tried by using the data of figure 2.

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December 17, 1954

In figure 2 all velocity recordings were used from the same 47 days and therefore the obtained curves were smoother. They show that the average wind velocity is the same at both locations during the windy afternoon hours, but it is higher at Terminus as the other hours. Especially the night hours show a remarkable diurnal of the winds of Rindge Island. Here, the night cooling is strong enough to establish a pressure gradient toward the center on many days or at least a tendency to cancel out the general westerly flow resulting in very low velocities during such hours. At Terminus, however, the night pressure reversal doesn't seem to materialize sufficiently to balance the west winds so that already in the morning the inflow of the marine air can reach critical velocities. It can be followed, that the Terminus area experiences higher wind speeds when compared with Rindge Island, and that this difference is more pronounced in the night and morning hours. Other factors equal, the Terminus area therefore should be considered more vulnerable to wind erosion than Rindge Island.

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December 17, 1951

Table 1. Number of days with at least one hourly velocity over 10 mph
from March to September 1950

	March	April	May	June	July	August	September	Total
No. of days with records	19	23	24	30	35	31	30	123
No. of days vel. over 10 mph	13	25	20	26	32	27	35	142
No. of days vel. over 10 mph from W or NW	8	13	21	27	32	16	17	100
Percent in % of all days	23	52	100	93	100	51	57	77

Table 2. Prevailing directions on days with velocities over 10 mph

Directions	S	SW	SWW	W	WWW	NWW	N	NEW	E	NE	SE	SWE	SWW
prevailing 1950	0	0	0	19	30	3	0	5	2	0	6	0	0
Bridge Left 1945-47	0	0	3	2	32	43	0	4	3	0	0	0	0

Table 3. Details of hours of high velocities for the various months.

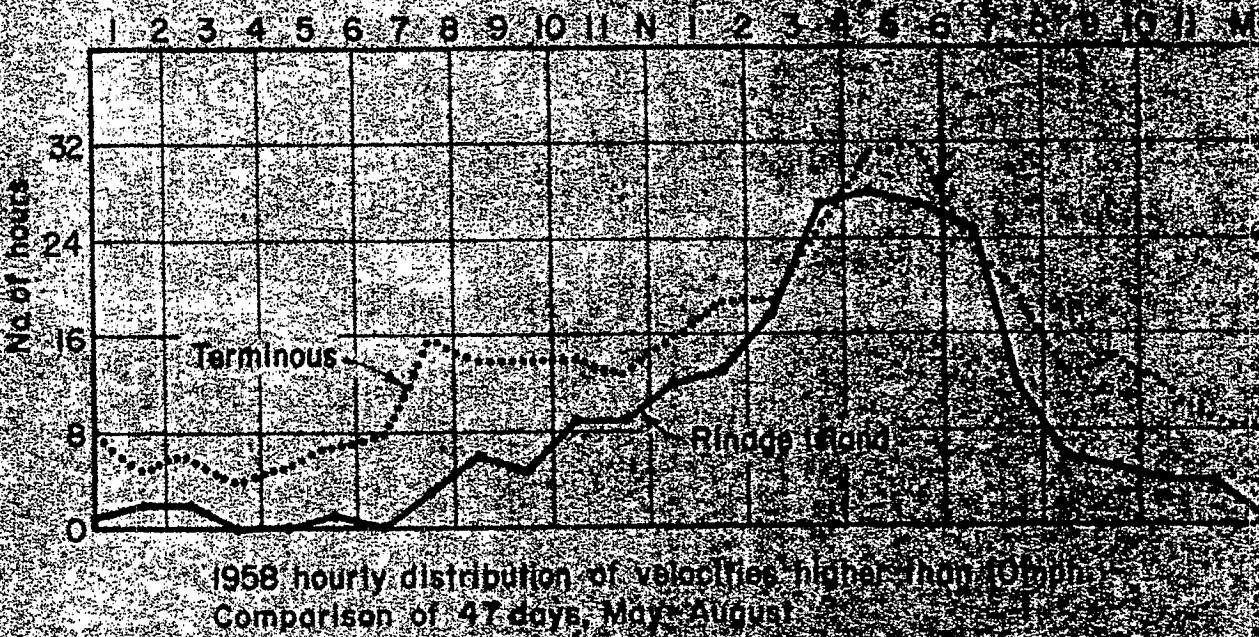
	March	April	May	June	July	August	September
No. hrs. over 10 mph	96	230	226	257	169	196	96
No. hrs. over 15 mph	39	84	85	70	58	63	1
Ave. Duration of one hourly period over 10 mph	7.5	2.5	30.7	9.0	5.5	7.2	5.0 hours

Table 3a. Figures of table 3 adjusted to full months.

	March	April	May	June	July	August	September
No. hrs. over 10 mph	169	229	230	257	162	190	96
No. hrs. over 15 mph	61	66	120	79	59	63	1

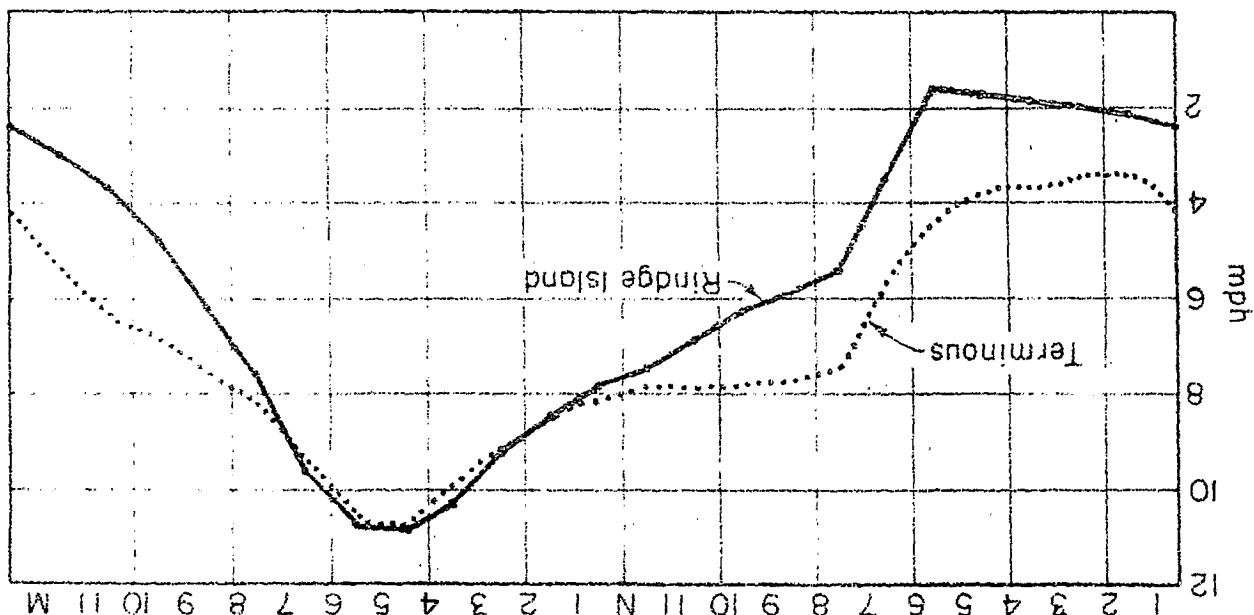
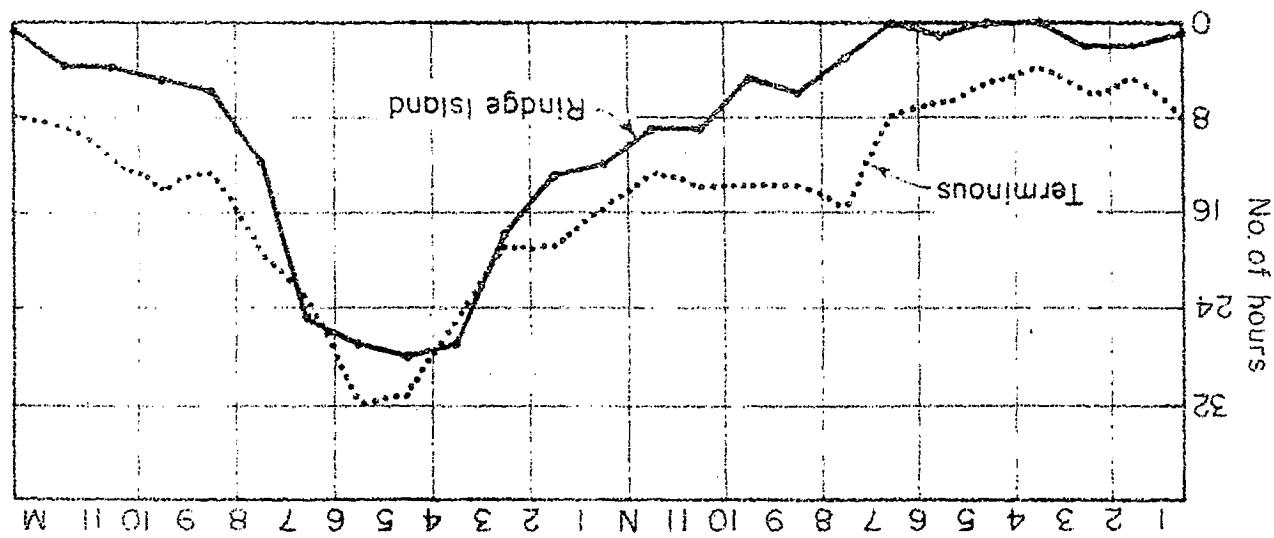
Table 4. Frequency of velocities over 10 mph for the various hours of the day,
Sacramento, March to September 1950

PM	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12
AM	6	7	8	6	5	4	6	13	19	22	24	22
PM	32	43	54	60	74	71	63	71	48	35	30	28
Same for velocities over 15 mph												
AM	0	1	2	2	0	0	1	0	1	2	1	10
PM	10	11	12	21	22	22	13	1	1	3	2	8



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Average hourly velocities, 47 days May - August

Comparison of 47 days, May - August.
1958 hourly distribution of velocities higher than 10 mph

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